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*A range of alternatives are available to water companies in the UK (United Kingdom) for reducing future water supply deficits, each having different implications in terms of environmental impacts (both positive and negative), level of service provided to customers and associated costs. This paper presents the results of two choice experiment valuation studies in the south east of England, in which water supply problems are considered. Further to the specifics of the individual scenarios, these studies lead to more general observations relevant to the future evaluation of water supply options.*²²⁴

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During a study visit at the University of Newcastle upon Tyne in northern England I have participated in a series of meetings which aimed to identify consumer preferences on the options / alternatives for the water supply by combining multiple methodologies.

Currently companies supplying water in the UK have a number of alternatives for preventing possible shortages of water resources in certain areas and seasons. Each alternative presents certain advantages and limitations that affect the environmental impacts, costs associated and the level of service provided.

The paper summarizes the results of two surveys on consumer choices regarding the availability of paying additional costs for the service delivered. In terms of specifications possible scenarios, this leads to general observations relevant for future evaluations of options for supplying water, as follows: to maintain and ensure the present level of service delivery is an opposition to pay for any improvement in safety for the supplies and service, in contrast, recipients of service are willing to pay more to prevent negative impacts on the environment.

To investigate the content and validity of these principles was that a survey company and representative sample consisted of distributing questionnaires to several focus groups.

Survey results were the foundation of research in order to improve them.

1. Establish methods of research

The most commonly used assessment is contingent achievement involving a hypothetical transaction to maximize a specific policy in the investigation. Processes contingent valuation focuses on assessing a specific scenario that promote a possible change in service quality and the environment. Given these issues is mandatory for researchers to accurately and fully inform beneficiaries of the service specification on the possible scenarios in order to identify the exact preferences of the latter.

It recommends implementation of an evaluation by sequential use of alternative methodology consisting in identifying attributes and service levels provided to them. The best known approach is the use of profiles to describe the goods or services analyzed. Profiles represent levels of particular attributes that characterize the consumer receiving service.

2. Options assessment of water

Complex assessment methods are becoming more frequently used to identify consumer preferences on the options of water. For example, contingent evaluation has been used widely in water supply industry to measure the reliability of service. Moreover, evaluation contingent and other alternative methods have undergone changes in their contents, thus being able to estimate / detect the availability of consumers to pay the costs of water supply in terms of conservation and environmental protection.

Results of studies suggest that recipients are willing to pay a small amount, but not unimportant to improve the reliability of water supply and to reduce negative environmental impacts.

Water companies in south east England have developed management plans for resources which compare forecasted demand with the current level of demand for water, under several scenarios.

These plans formed the foundation for the development and implementation of water resources in south eastern England under the Environment Agency. The case studies presented below highlight some problems arising during the implementation strategy, the problems that are solved in a better collaboration between service providers and beneficiaries. Techniques and methods of economic evaluation can provide information about consumer preferences and this helps in improving the management of water resources.

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3. Case study number 1 - Risks relating to the transfer of water resources

One of the basic principles established by the strategy of water resources refers to the need to transfer water from areas with surplus to areas facing shortage during the dry season. In this variant had to resort before opting for any other alternative (water reservoirs).

In the area of Sussex in south east England local water companies forecast that will face major shortages of water supply in dry years.

At the same time have been identified in other areas of additional water resources. To eliminate the risk of significantly reducing the water resources, and hence the emergence of temporary incapacity provision of water services to the proposed transfer of water from surplus areas to areas facing a shortage of water.

This option was considered in the context of the strategy of water to the region becoming favorite strategic option for services respecting environmental standards.

After some experiments have identified a potential risk regarding to the transfer of unwanted species in the basin for collecting water from the Sussex area. Of all the species identified, two of them were classified as dangerous, which is why they were included in the analysis and risk assessment of adoption of these decisions.

Crassulla helmsii plant is an aquatic parasite (intruder) and *Ergasilus sieboldi* is a bacterium / parasite a specific fish.

These endangered species of aquatic life of rivers and Rothera Wallers Haven, and the land on which they were drained (Pevensey Levels and Romney marshes). These contaminated areas are not currently *Crassulla helmsii*, although fish from the river is infested with the parasite *Rothera Ergasilus*.

Crassulla develops into a rapidly and destroy aquatic flora. Once he has made presence felt this plant is difficult exterminated, especially during the winter that it is not frozen.

The presence of bacteria in fish does not affect in any recreational activities on water courses and areas supplied from these rivers.

At the time of adoption of the measure to transfer the water could not make a more precise estimate of operating costs. All these deficiencies have led to use the method with several variants / scenarios, which method is more flexible than the assessment quotas.

Following the use of appropriate methodology to successfully identify the best scenario. Final solution was to transfer the necessary water resources, leaving them the possibility of beneficiaries to choose between several different prices.

4. Case Study number 2

One of the possible ways to resolve the imbalance of water in western Sussex area consisted of "Hardham Artificial Recharge Supply. Considered that when demand for water exceeds the deficient supply of the necessary quantity of discharge water during the events of rye in the conservation of the environment.

In the winter months is an artificial regeneration of water resources that have been discharged from the aquifer during the summer, through capture of a nearby river. Water shall, except chloriding, fully treated before going back in the aquifer.

After some mathematical calculations and analysis of cost-benefit has reached the following results:

- Beneficiaries of the service are willing to pay an additional cost of more than 10 pounds per year to prevent the multiplication of plant parasite;
- The beneficiaries are willing to fund in addition to approximately 18 pounds per year bacterial parasite destruction in fish.

In conclusion, this paper presents results of two experiments conducted as a case study in south east England area facing problems with water in the region. Beyond the specific scenarios presented, these case studies led to several general observations relevant for future assessment of the options of water. For example, at the current level of reliability to provide the service consumers are not willing to pay additional costs for new investments, but consumers are willing to pay higher fees for providing this service in order to prevent negative impacts on the environment, and to a more generally, the beneficiaries are willing to pay for the operations of water supply which would lead to the conservation and improvement of the environment, although this depends on the type of improvements taken into account.

More to explore the meaning and validity of these principles to appeal to an experiment that targeted consumer options, options that were studied using the analysis of the resulting distribution of questionnaires to six focus groups. The results provide qualitative support for preliminary observations, suggesting that beneficiaries are satisfied with current levels of provision of quality service and have a preference for environmental protection and not for improving the service (quality of investments). Taking into account the environment and improving environmental factors, it was found that participants in these focus groups could see the importance of the strategic management on environmental protection.

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4. *** - questionnaires, different materials resulted from the discussion with the focus groups